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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/810,387	03/15/2001	Craig M. Carpenter	MI22-1559	8779

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EXAMINER

ZERVIGON, RUDY

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 05/29/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/810,387

Applicant(s)

CARPENTER ET AL.

Examiner

Rudy Zervigon

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 18 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-36 is/are pending in the application.
- 4a) Of the above claim(s) 30-36 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-29 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 3 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim 3 recites the limitation "the seat" in line 1. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

4. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
5. Claims 1-23, 25-29 are rejected under 35 U.S.C. 102(b) as being anticipated by Fukui et al (USPat. 5,002,928). Fukui teaches a deposition apparatus (Figure 1) for depositing superconducting films (column 2, lines 14-36). Fukui further teaches a deposition chamber (14) defined partly by a chamber body ("solution-escaping inhibitor"; column 5, lines 1-2) including a lid¹ (top tapered portion of 14), where the lid and the chamber body have a similar thickness (see Figure 1). Fukui further teaches a needle valve / isolation mechanism (6) that seals fluid flow between an outermost (outside chamber 14) and innermost (inside chamber 14) surface of the

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chamber body (14; column 4, lines 53-59). Fukui further teaches a part of the valve housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) between the innermost (inside chamber 14) and outermost surfaces (outside chamber 14) of the chamber body (14; column 4; lines 28-31, 36-39, 53-60). Fukui further teaches the valve body (1) including a portion of the chamber body (14) as at least a part of the valve housing (column 4; lines 28-31, 36-39, 53-60). Fukui further teaches at least a part of the process chemical inlet (11) to the valve body (1) between the innermost and outermost surfaces of the chamber body, and wherein the chamber body (14) forms a part of a material inlet (11,12). Fukui further teaches the part of the valve housing (fitting in 14 for valve 1) comprised by the portion of the lid is defined by a cylindrical opening (conduit for stem 3; column 4, line 34) in the lid. The valve body (1) further comprising a stem (3) coincident with the central axis of the cylindrical opening at least partially within the cylindrical opening. Fukui further teaches:

- i. A portion (7) of the lid comprises at least part of a valve plug seat (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) that is between an innermost (inside chamber 14) and outermost (outside chamber 14) surfaces of the chamber lid – Figure 1
- ii. The entirety of the valve seat (inside surface of 7; Figure 1) is between an innermost surface of the lid inside the chamber and an outermost surface of the lid outside the chamber (Figure 1)
- iii. The part of the valve seat (6/7 interface) comprised by the portion of the lid is defined by a beveled and annular lid surface around a cylindrical opening through the lid, the valve body

¹ Lid – 5: something that confines, limits, or suppresses - Merriam-Webster's Collegiate Dictionary - 10th Ed. p.671

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further comprising a plug (6) complementary to the beveled lid surface - see vertical and slanted tapering at the 6/7 interface in Figure 1

Claim Rejections - 35 USC § 103

6. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

7. Claim 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fukui et al (USPat. 5,002,928) in view of Waterfield (USPat. 4,319,737). Fukui is discussed above. However, Fukui does not teach a diaphragm valve. Waterfield teaches a diaphragm valve (Figure 1).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Fukui to replace his needle valve with Waterfield's diaphragm valve.

Motivation for Fukui to replace his needle valve with Waterfield's diaphragm valve is to provide an alternate and equivalent valve for delivering process fluids.

Response to Arguments

8. Applicant's arguments filed March 18, 2003 have been fully considered but they are not persuasive.

9. Applicant's position that "the chamber lid and body have similar thickness" distinguishes the present invention from Fukui's is not convincing. Applicant is referred to the claim rejections above and to Figure 1 showing a tapered lid portion 14 and a lower cylindrical chamber portion 14.

10. Applicant's position that Fukui "does not disclose any valve body having a seat between the innermost and outermost surfaces of fence 14" is not convincing. As stated above, Fukui teaches a needle valve / isolation mechanism (6) that seals fluid flow between an outermost (outside chamber 14) and innermost (inside chamber 14) surface of the chamber body (14;

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column 4, lines 53-59). Fukui further teaches a part of the valve housing (inside surface of 7; Figure 1; column 4; lines 28-31, 36-39, 53-60) between the innermost (inside chamber 14) and outermost surfaces (outside chamber 14) of the chamber body (14; column 4; lines 28-31, 36-39, 53-60).

11. In response to applicant's argument that "Fukui does not describe the device of Fig. 1 as being suitable for ALD", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). In particular, Fukui's structure is capable of performing the intended use of ALD (atomic layer deposition). In particular, attention is made to Applicant's Figure 1 that, according to the specification (page 1, lines 15-22 and elsewhere), is capable of performing ALD. Figure 1 teaches, at minimum, an isolation mechanism (88; Page 10) and a chamber (84). Figure 1 of the Fukui reference teaches an isolation mechanism (1) and a chamber (14). Although liquid material introduction ports (9,11) are taught by Fukui, Fukui's liquid introduction ports can be used to inject gas material as Fukui demonstrates according to carrier gas port 12.

12. Applicant states that Fukui does not teach Applicant's claim 15 limitation of "...the valve body selectively shuts off flow of a process chemical into the chamber, adjusts the flow rate of the chemical into the chamber, or does both.". The Examiner disagrees. Applicant is referred to the body of the claim rejections above. In particular, Fukui's mechanism for said valve body

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identically performs the application where the valve body (1) selectively shuts off flow of a process chemical (carried by 9,11) into the chamber (14), and thereby adjusts the flow rate of the chemical into the chamber as described by Fukui (column 4, lines 53-59).

13. In response to applicant's argument that the references fail to show certain features of applicant's invention, it is noted that the features upon which applicant relies (i.e., "flow control valve") are not recited in the rejected claims. Although the claims are interpreted in light of the specification, limitations from the specification are not read into the claims. See *In re Van Geuns*, 988 F.2d 1181, 26 USPQ2d 1057 (Fed. Cir. 1993).

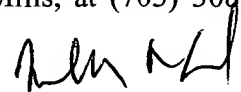
14. In response to applicant's argument that Fukui does not teach the limitations of claim 17, a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. In a claim drawn to a process of making, the intended use must result in a manipulative difference as compared to the prior art. See *In re Casey*, 152 USPQ 235 (CCPA 1967) and *In re Otto*, 136 USPQ 458, 459 (CCPA 1963). Fukui's apparatus is capable of performing the intended use where the valve position is 50% open when "about 50% of a maximum flow rate" is provided thereby providing a 1:1 ratio between provided flow rate and valve position as taught by Fukui (column 4; lines 53-59). When the forcing pressure equals the chemical supply pressure, the flow is at 100% and the valve is 100% open. When the forcing pressure is larger than the chemical supply pressure, the flow is at 0% and the valve is 0% open.

Conclusion

15. Applicant's amendment necessitated the new grounds of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Rudy Zervigon whose telephone number is (703) 305-1351. The examiner can normally be reached on a Monday through Thursday schedule from 8am through 7pm. The official after final fax phone number for the 1763 art unit is (703) 872-9311. The official before final fax phone number for the 1763 art unit is (703) 872-9310. Any Inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Chemical and Materials Engineering art unit receptionist at (703) 308-0661. If the examiner can not be reached please contact the examiner's supervisor, Gregory L. Mills, at (703) 308-1633.



JEFFRIE R. LUND
PRIMARY EXAMINER